

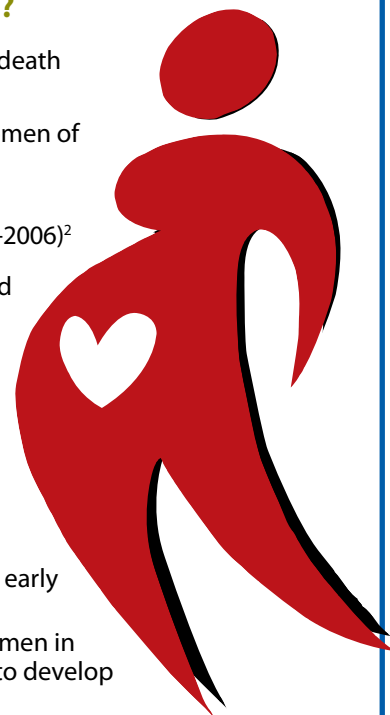
Cardiovascular Disease (CVD) and Risk Factors for CVD among Women of Reproductive Age (18-44 years)

Why should CDC focus CVD prevention efforts to women of reproductive age?

- High blood pressure and high cholesterol are major risk factors for CVD, the leading cause of death in women.
- These conditions often manifest during the adult reproductive years (ages 18-44). Among women of reproductive age:
 - » 1 in 10 women ages 18-44 years have high blood pressure (2009)¹
 - » 3 in 20 women ages 20-45 years have high low-density lipoprotein cholesterol (LDL-C) (1999-2006)²
- Tobacco use, poor nutrition, physical inactivity, and unhealthy weight are CVD risk factors, and CDC's Million Hearts Initiative Campaign supports community activities to help Americans live tobacco free, improve nutrition, increase regular physical activity, and maintain a healthy weight.³⁻⁴ Many women of reproductive age are in need of such efforts.
 - » About half of women of reproductive age are physically inactive (2007)⁵
 - » Nearly one third of women of reproductive age are obese (2003-2006)⁵
 - » One-fifth of women of reproductive age smoke (2006-2008)⁵
- The pregnancy state and birth outcomes can unmask increased future risk of CVD.
 - » History of preeclampsia, gestational diabetes, or pregnancy-induced hypertension may be early indicators of CVD risk factors in women.⁶
 - » Women with high blood pressure during pregnancy (approximately 8% of all pregnant women in 2006)⁷ are about 3 times as likely to develop hypertension later in life and 2 times as likely to develop heart disease.⁸⁻¹⁰
 - » Women who deliver early (before 37 weeks) or have a growth restricted infant face approximately two times the risk of developing CVD later in life compared to women who have normal weight infants born at term.¹¹⁻¹²
- Chronic hypertension contributes to serious illness or death for pregnant women, including:
 - » acute renal failure,
 - » pulmonary edema,
 - » preeclampsia, and
 - » stroke.¹³
- Approximately one in ten of all pregnancy-related deaths (within one year of delivery) are due to CVD (1998-2005).¹⁴
- Hypertensive disorders during pregnancy, especially preeclampsia, contributes to fetal growth restriction, preterm delivery and preterm-related deaths.¹⁵

What is CDC doing?

- Conducting surveillance
 - » [Pregnancy Mortality Surveillance System](#)
 - » [Pregnancy Risk Assessment Monitoring System](#)
 - » [Behavioral Risk Factor Surveillance System](#)
- Increasing epidemiologic capacity at the state, local, territorial, and tribal level to effectively use data for CVD prevention
 - » Direct assistance through 12 field [assignments](#) of MCH Epidemiologists and fellows
 - » Convening the Annual Maternal and Child Health Epidemiology Conference
 - » Promoting other peer exchange forums and continuing education trainings
- Evaluating interventions and identifying evidence-based prevention practices through \$2.1 million investment in two special interest projects (2009-2013)
 - » [University of North Carolina at Chapel Hill](#)
 - » [University of Washington](#)



References

1. Hayes DK, Fan AZ, Smith RA, Bombard JM. Trends in selected chronic conditions and behavioral risk factors among women of reproductive age, Behavioral Risk Factor Surveillance System, 2001–2009. Erratum appears in *Prev Chronic Dis* 2010;8(6). Available at: http://www.cdc.gov/pcd/issues/2012/11_0290.htm. Accessed February 10, 2012. *Prev Chronic Dis* 2011;8(6):A120. Available at: http://www.cdc.gov/pcd/issues/2011/nov/10_0083.htm.
2. Kuklina EV, Yoon PW, Keenan NL. Prevalence of coronary heart disease risk factors and screening for high cholesterol levels among young adults, United States, 1999–2006. *Ann Fam Med*. 2010;8(4):327–33.
3. Frieden TR, Berwick DM. The “Million Hearts” Initiative—preventing heart attack and strokes. *N Eng J Med*. 2011;365(13):e27.
4. CDC. Million Hearts: strategies to reduce the prevalence of leading cardiovascular disease risk factors—United States, 2011. *MMWR Morb Mortal Wkly Rep*. 2011;60(36):1248–51.
5. CDC. Preventing and managing chronic disease to improve the health of women and infants. Available at: http://www.cdc.gov/reproductivehealth/WomensRH/PDF/ChronicDisease_FactSheet.pdf. Accessed February 10, 2012.
6. Mosca, L., et al., 2011: Update: Effectiveness-Based Guidelines for the Prevention of Cardiovascular Disease in Women. *Circulation*, 2011. 123(11):1243–1262
7. Kuklina EV, Ayala C, Callaghan WM. Hypertensive disorders and severe obstetric morbidity in the United States. *Obstet Gynecol*. 2009;113(6):1299–306.
8. Craici I, Wagner S, Garovic VD. Preeclampsia and future cardiovascular risk: formal risk factor or failed stress test? *Ther Adv Cardiovasc Dis*. 2008;2:249–259.
9. Lykke JA, Langhoff-Roos J, Sibai BM, Funai EF, Triche EW, Paidas MJ. Hypertensive pregnancy disorders and subsequent cardiovascular morbidity and type 2 diabetes mellitus in the mother. *Hypertension*. 2009;53(6): 944–51.
10. Bellamy L, Casas J, Hingorani AD, Williams DJ. Pre-eclampsia and risk of cardiovascular disease and cancer in later life: systematic review and meta-analysis. *BMJ*. 2007;335(7627):974.
11. Smith GD, Whitley E, Gissler M, Hemminki E. Birth dimensions of offspring, premature birth, and the mortality of mothers. *Lancet*. 2000;356(9247):2066–7.
12. Smith GC, Hypponen E, Power C, Lawlor DA. Offspring birth weight and parental mortality: prospective observational study and meta-analysis. *Am J Epidemiol*. 2007;166:160–9.
13. Bateman B, Bansil P, Hernandez-Diaz S, Mhyre JM, Callaghan WM, Kuklina E. Prevalence, trends, and outcomes of chronic hypertension: a nationwide sample of delivery admissions. *AJOG*. 2011;1.e1–1.e8
14. Berg CJ, Callaghan WM, Syverson C, Henderson Z. Pregnancy-related mortality in the US, 1998 to 2005. *Obstet Gynecol*. 2010;116:1302–1309.
15. Gruslin A, Lemyre B. Pre-eclampsia: fetal assessment and neonatal outcomes. *Best Pract Res Clin Obstet Gynaecol*. 2011;25:491–507.